

GENERAL CONSTRUCTION NOTES:

INSTALLATION AND CONSTRUCTION SHALL CONFORM TO THE DEPARTMENT OF TRANSPORTATION STANDARDS SPECIFICATIONS SECTIONS APPLICABLE, STANDARD PLANS DATED AND EFFECTIVE FOR THE CURRENT YEAR, AND ANY SPECIAL MUNICIPALITY CODE PROVISIONS.

- THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES IS APPROXIMATE. THE SUBCONTRACTOR SHALL DETERMINE THE LOCATION AND DEPTH OF ALL UTILITIES INCLUDING THOSE NOT SHOWN ON PLANS AND VERIFY ALL JOB SITE CONDITIONS, HAND EXCAVATE FOUNDATION UNTIL CLEAR OF ALL SUBSTRUCTURES AND PROTECT ALL FACILITIES DURING CONSTRUCTION. SUBCONTRACTOR SHALL MAKE ALL NECESSARY ARRANGEMENTS FOR UNDERGROUND UTILITY REMOVAL OR RELOCATION WITH RESPECTIVE UTILITY OWNERS AS MAY BE REQUIRED SUFFICIENTLY IN ADVANCE TO PREVENT DELAY IN OPERATIONS.
2. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UNDERGROUND UTILITIES ENCOUNTERED IN AREAS WHERE EXCAVATIONS ARE INDICATED AND SHALL REPAIR ANY SUCH DAMAGE AT OWN EXPENSE. WHERE UTILITY LINES MUST BE MAINTAINED UNDER STRUCTURE, THEY SHALL BE PROPERLY SLEEVED THROUGH FOUNDATION.
3. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OR REPAIR OF ANY DAMAGE CAUSED BY THEM OR THEIR SUBCONTRACTORS.
4. THE SUBCONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND NOTIFY ALL UTILITIES AND THE CITY AT LEAST 72 HOURS IN ADVANCE OF CONSTRUCTION.
5. THE SUBCONTRACTOR SHALL CALL THE TRANSPORTATION TRAFFIC DIVISION, FIVE (5) DAYS PRIOR TO THE START OF WORK FOR A TRAFFIC CONTROL PLAN APPOINTMENT
6. THE SUBCONTRACTOR IS REQUIRED TO SUBMIT A WEEKLY SCHEDULE PRIOR TO START OF WORK EACH WEEK. (NO EXCEPTIONS)
7. POLE MOUNTED DETECTOR AND EQUIPMENT LOCATIONS SHALL BE AS DEPICTED ON SITE PLAN. THE SUBCONTRACTOR SHALL VERIFY EQUIPMENT FIELD LOCATIONS WITH THE ACS IMPLEMENTATION MANAGER (301) 357-9403 OR LOCAL AND/OR EXCAVATION AUTHORITY AND ACS PRIOR TO INSTALLATION.
8. THE SUBCONTRACTOR SHALL SUPPLY AND INSTALL ALL CONDUCTORS NECESSARY FOR THE INTENDED OPERATION AS NOTED ON THESE PLANS, NEC AND ALL APPLICABLE MUNICIPALITY CODES.
9. PROVIDE ANCHOR BOLT NUT COVERS IF REQUIRED DUE TO EXTERIOR INSTALLATION.
10. ALL PULLBOXES AND COVERS SHALL BE CONCRETE OR PVC AS REQUIRED BY THE MUNICIPALITY. ALL PULLBOXES SHALL BE NO. 5 UNLESS OTHERWISE NOTED OR REQUIRED BY THE MUNICIPALITY.
1. ALL CONCRETE FORMS ARE TO BE INSPECTED BY LOCAL AUTHORITIES BEFORE CONCRETE IS PLACED.
2. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING AND COORDINATION WITH THE SERVING (ELECTRICAL) UTILITY COMPANY AND PAY REQUIRED FEES FOR SERVICE CONNECTIONS.
3. THE SUBCONTRACTOR TO OBTAIN A NO FEE ENCROACHMENT PERMIT FROM THE CITY PRIOR TO COMMENCEMENT OF WORK. ALL WORK SHALL BE INSPECTED BY CITY FORCES AT COMPLETION OF PROJECT CONTACT THE CITY ENGINEER 24 HOURS PRIOR TO COMPLETION OF WORK.
4. THE SUBCONTRACTOR IS TO BUILD AND MAINTAIN A CONSTRUCTION BARRICADE, TRAFFIC CONTROLS SHALL BE PER THE LATEST TMUTCD STANDARDS TO INCLUDE THE ARROW BOARD, NO LANE CLOSURES DURING PEAK TRAFFIC HOURS.
5. ALL SUBCONTRACTORS TO PROVIDE LIABILITY INSURANCE AND WORKERS COMPENSATION BENEFITS IN ACCORDANCE WITH STATE LAW FOR ALL WORKERS AND AGENTS WHO WILL BE ON THE SITE AT ANY TIME WHILE PERFORMING WORK ON THIS PROJECT. ALL WORK SHALL BE IN ACCORDANCE WITH NEC, ALL LOCAL, STATE AND FEDERAL CODES, ORDINANCES AND ANY APPLICABLE AMENDMENTS.

16. ALL DEBRIS, EXCESS MATERIAL, ETC. IS TO BE REMOVED BY THE SUBCONTRACTOR BY THE END OF THE JOB. JOB TO BE LEFT SUFFICIENTLY CLEAN AS TO WARRANT CITY APPROVAL.
17. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS, FEES AND INSPECTIONS AS MAY BE REQUIRED FOR COMPLETION OF THE JOB AS PER ALL GOVERNING AGENCIES.
18. THE SUBCONTRACTOR TO PROVIDE COST ESTIMATE FOR ALL WORK SHOWN ON DRAWINGS AND WORK NORMALLY REQUIRED TO CARRY OUT THE DESIGN INTENT OF THESE DRAWINGS.
19. DRAWINGS ARE NOT TO BE SCALED. WORK SHALL BE GOVERNED BY DIMENSION ONLY. DISCREPANCIES BETWEEN THE DRAWINGS AND/OR THE EXISTING SITE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF ACS IMMEDIATELY.
20. P.R.C. EQUIPMENT SHALL NOT BE INSTALLED ON MEDIANS LESS THAN FIVE FEET (5') IN WIDTH.
21. P.R.C. RELATED EQUIPMENT SHALL NOT BE INSTALLED WITHIN FIVE FEET (5') OF FIRE HYDRANT.
22. P.R.C. RELATED EQUIPMENT SHALL NOT BE INSTALLED WITHIN FOUR FEET (4') OF ADA RAMPS.
23. SUBCONTRACTOR SHALL SUPPLY AS-BUILT DRAWINGS TO ACS ENGINEERING DEPARTMENT WITHIN THIRTY (30) DAYS OF CONSTRUCTION COMPLETION.
24. SUBCONTRACTOR SHALL COMPLETE A "RLC POST CONSTRUCTION INSTALLATION ACCEPTANCE FORM" FOR EACH RLC INSTALLED. COMPLETED FORMS SHALL BE FORWARDED TO ACS CONSTRUCTION DEPARTMENT.
25. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE RESPECTIVE OWNERS AND OTHER AGENCIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION, CONTACT:
 - * GAS COMPANY
 - * WATER DISTRICT
 - * PHONE COMPANY
 - * CABLE COMPANY
 - * LOCAL AND/OR STATE EXCAVATION AUTHORITY

SPECIFIC CONSTRUCTION NOTES:

1. THE SUBCONTRACTOR SHALL INSTALL ALL SUBSTRUCTURES ACCORDING TO LOCAL GOVERNING AGENCY FROST LINE REQUIREMENTS WHERE APPLICABLE.
2. THE SUBCONTRACTOR SHALL MODIFY ALL SIDEWALKS WHERE NECESSARY, IN COMPLIANCE WITH THE ADA STANDARDS, TO ALLOW ACCESS FOR HANDICAP PEDESTRIAN PASSAGE.

INDEX OF PLANS

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SIG 4	LOOP INSTALLATION DETAILS
SIG 5	SINGLE LINE DIAGRAM
SIG 6	CAMERA UNIT TERMINAL STRIP WIRING DETAILS
SIG 7	FLASH UNIT TO CAMERA POLE WIRING DETAILS
SIG 8	PELCO POLE DETAILS
SIG 9	CAMERA UNIT/DUAL FLASH CONFIGURATION



12410 MILESTONE CENTER
DRIVE
4TH FLOOR
GERMANTOWN, MD 20876
PHONE: (301) 357-9403



RAMEY KEMP

ASSOCIATES, INC
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-875-5416 Fax.
www.rameykemp.com



SCALE

NONE

SR 2911 (New Bern Avenue)
at
I-440 Eastbound Ramp
(Inner Loop)

Division 5 Wake County Raleigh
PLAN DATE: Jan 2009 REVIEWED BY: [REDACTED]
PREPARED BY: [REDACTED] RKA PROJ. NO.: 08232 (040)

REVISIONS	INIT.	DATE

SIGNATURE	DATE
SIG. INVENTORY NO.	05-1614

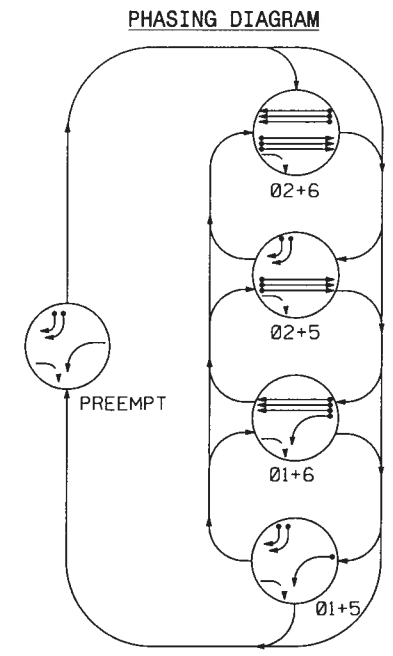
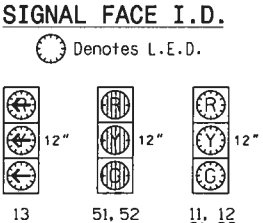


TABLE OF OPERATION

SIGNAL FACE	PHASE					
	01+5	01+6	02+5	02+6	PREMPT	FLASH
11, 12	G	R	R	G	R	
13						
21, 22	R	R	G	G	R	Y
51, 52	G	R	G	R	G	R
53	G	R	G	R	G	R
61, 62	R	G	R	G	R	Y



LOOP & DETECTOR UNIT INSTALLATION CHART																						
170 CONTROLLER AND CABINET																						
INDUCTIVE LOOPS							DETECTOR PROGRAMMING															
							TIMING		ATTRIBUTES								STATUS					
LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	NEW	EXISTING	NEMA PHASE			DELAY	CARRY (STRETCH)	FULL TIME DELAY	1	2	3	4	5	6	7	8	LOOPS	NEW	EXISTING
							PRESTRIKING CALL	RESERVED				COUNT	EXTENSION	TYPE 3	CALLING	ALTERNATE	SYSTEM					
1A	6X60	2-4-2	+5'	X		1	- SEC.	- SEC.								X	X					X
2A, 2B, 2C	6X6	4	300'	X		2	- SEC.	- SEC.						X	X		X					X
5A	6X60	2-4-2	0'	X		5	- SEC.	- SEC.							X	X		X				X
5B	6X60	2-4-2	0'	X		5	- SEC.	- SEC.								X	X					X
6A, 6B, 6C	6X6	5	300'	X		6	- SEC.	- SEC.						X	X		X					X
PA	6X10	5	780'	X		•	- SEC.	- SEC.														

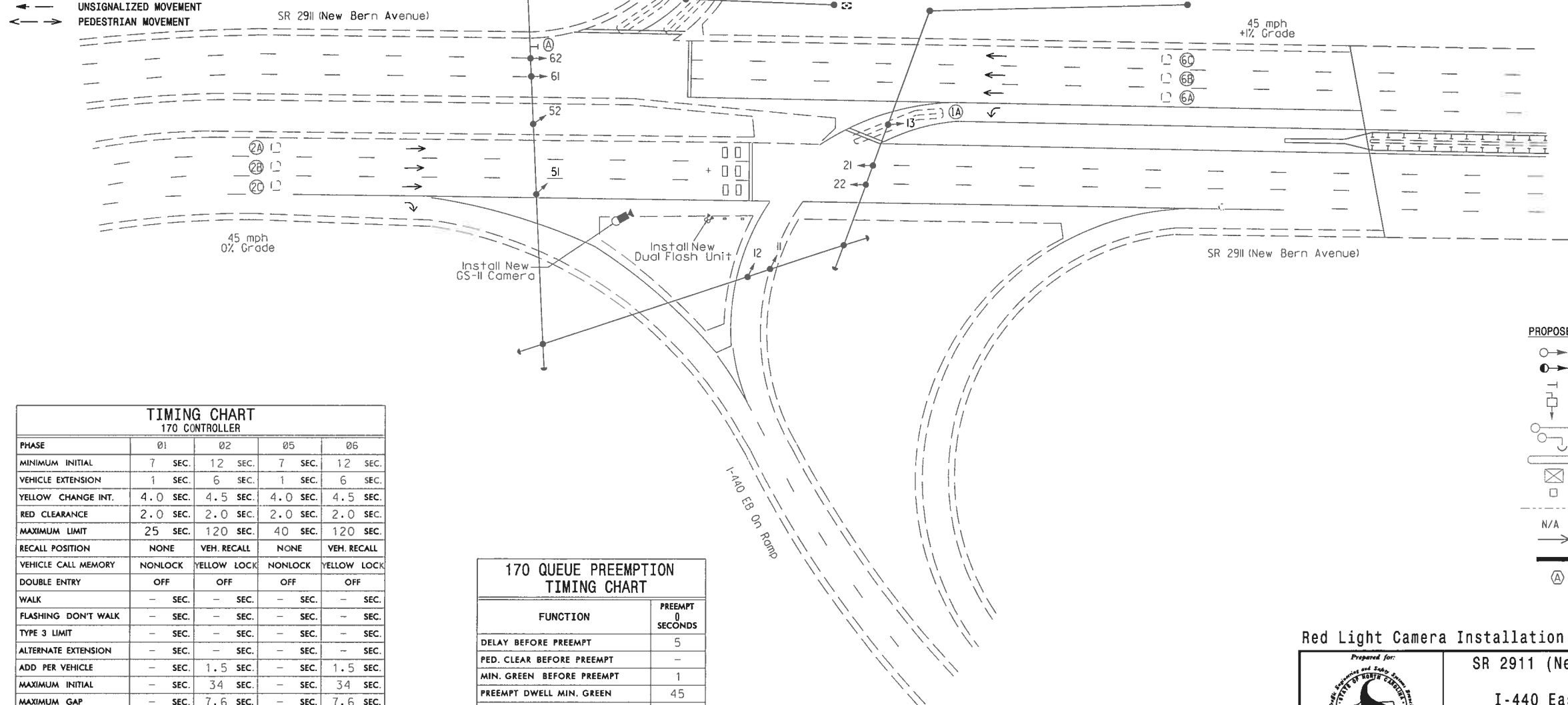
4 Phase
Fully Actuated w/ Queue Preempt
(US 64 Bus. Closed Loop Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated July 2006, "Standard Specifications for Roads and Structures" dated July 2006 and all applicable sections of the latest version of the generic Project Special Provisions. The PSP can be accessed at the following website:
<http://www.ncdot.org/doh/preconstruct/traffic/itss/>
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signalsystem timing values supersede these values.
- Pavement markings are existing.
- Closed Loop System Data: Area Address 1
Local Address 7

PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT



RED LIGHT CAMERA LEGEND

- Video Detection Camera
- Camera Unit
- Auxiliary Flash Assembly
- No. 5 Pullbox
- Power Pedestal

LEGEND

- | PROPOSED | EXISTING |
|--|-------------------------------|
| Traffic Signal Head | Modified Signal Head |
| Pedestrian Signal Head With Push Button & Sign | Signal Pole with Sidewalk Guy |
| Inductive Loop Detector | 2-in Underground Conduit |
| Controller & Cabinet | Right of Way |
| Junction Box | Directional Arrow |
| Stop Bar | "No Right Turn" Sign (R3-1) |

TIMING CHART
170 CONTROLLER

PHASE	01	02	05	06
MINIMUM INITIAL	7 SEC.	12 SEC.	7 SEC.	12 SEC.
VEHICLE EXTENSION	1 SEC.	6 SEC.	1 SEC.	6 SEC.
YELLOW CHANGE INT.	4.0 SEC.	4.5 SEC.	4.0 SEC.	4.5 SEC.
RED CLEARANCE	2.0 SEC.	2.0 SEC.	2.0 SEC.	2.0 SEC.
MAXIMUM LIMIT	25 SEC.	120 SEC.	40 SEC.	120 SEC.
RECALL POSITION	NONE	VEH. RECALL	NONE	VEH. RECALL
VEHICLE CALL MEMORY	NONLOCK	YELLOW LOCK	NONLOCK	YELLOW LOCK
DOUBLE ENTRY	OFF	OFF	OFF	OFF
WALK	- SEC.	- SEC.	- SEC.	- SEC.
FLASHING DON'T WALK	- SEC.	- SEC.	- SEC.	- SEC.
TYPE 3 LIMIT	- SEC.	- SEC.	- SEC.	- SEC.
ALTERNATE EXTENSION	- SEC.	- SEC.	- SEC.	- SEC.
ADD PER VEHICLE	- SEC.	1.5 SEC.	- SEC.	1.5 SEC.
MAXIMUM INITIAL	- SEC.	34 SEC.	- SEC.	34 SEC.
MAXIMUM GAP	- SEC.	7.6 SEC.	- SEC.	7.6 SEC.
REDUCE 0.1 SEC EVERY	- SEC.	1.7 SEC.	- SEC.	1.7 SEC.
MINIMUM GAP	- SEC.	3 SEC.	- SEC.	3 SEC.

170 QUEUE PREEMPTION TIMING CHART

FUNCTION	PREEMPT 0 SECONDS
DELAY BEFORE PREEMPT	5
PED. CLEAR BEFORE PREEMPT	-
MIN. GREEN BEFORE PREEMPT	1
PREEMPT DWELL MIN. GREEN	45
YELLOW CLR AFTER PREEMPT	-
PREEMPT EXTEND (if optical detection unit is used)	-

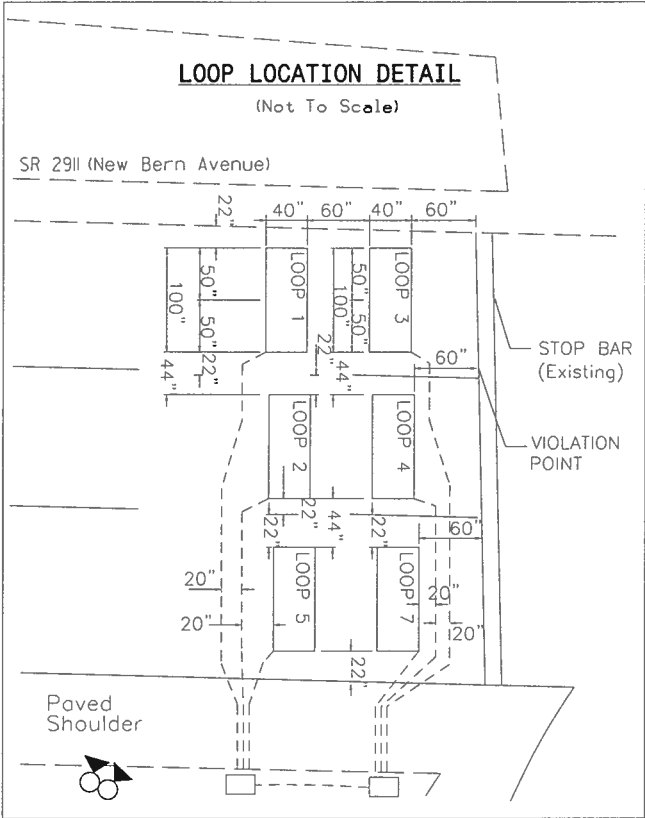
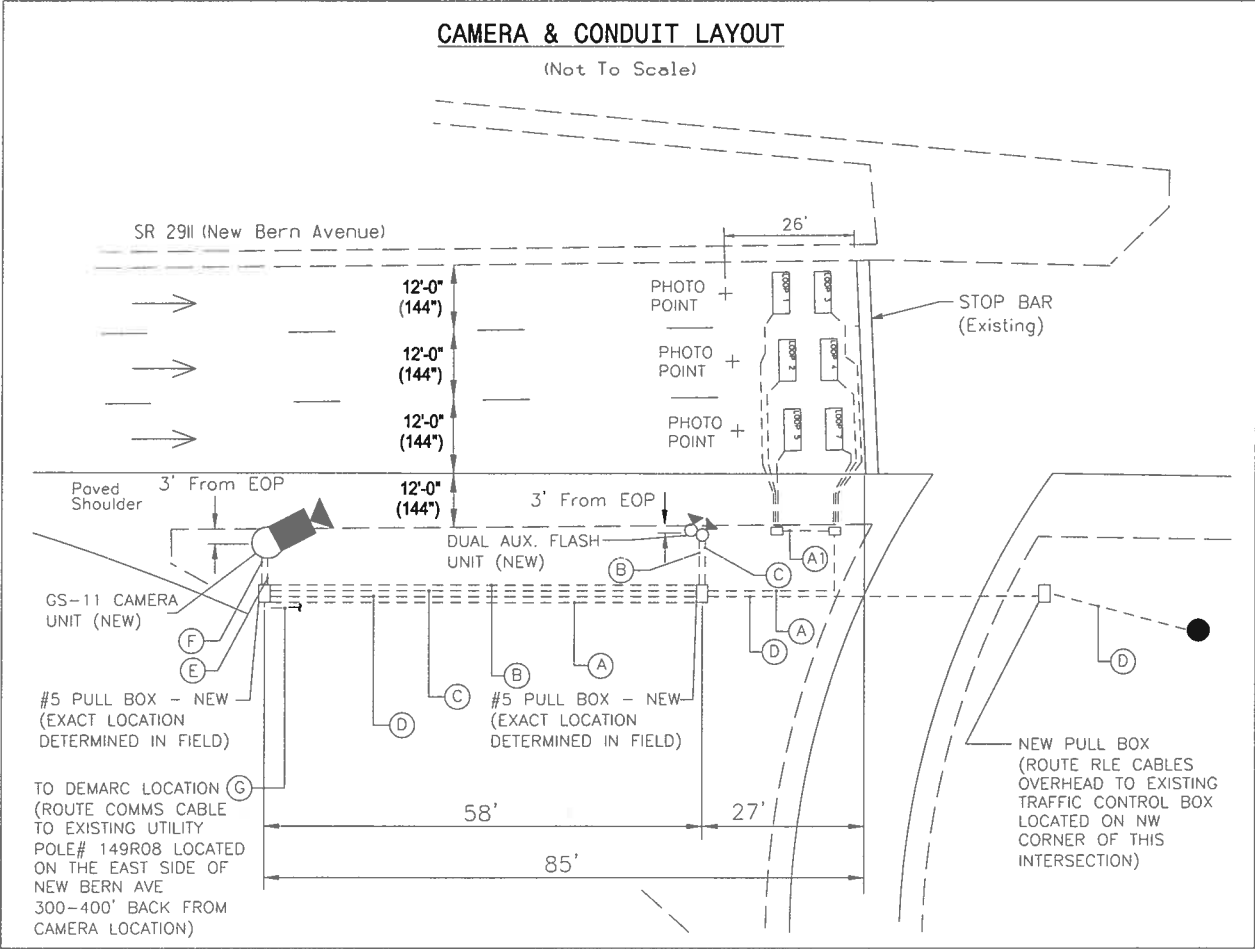
Red Light Camera Installation - Site Plan

	SR 2911 (New Bern Avenue) at I-440 Eastbound Ramp (Inner Loop)		
	Division 5	Wake County	
	PLAN DATE: Jan 2009	REVIEWED BY: [Signature]	
	PREPARED BY: [Signature]	RKA PROJ. NO.: 08232 (040)	
REVISIONS		INIT.	DATE
[Signature]		[Signature]	[Signature]
SIG. INVENTORY NO.		05-1614	

12410 MILESTONE CENTER DRIVE
4TH FLOOR
GERMANTOWN, MD 20876
PHONE: (301) 357-9403

A C S
Germantown, MD

Prepared in the offices of:
RAMEY KEMP ASSOCIATES, INC.
Transportation Engineers
5808 Farlington Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com



CONDUIT SCHEDULE

LETTER	CONDUIT SIZE	CONDUIT CONSTRUCTION	TYPE OF SERVICE	EQUIPMENT SERVICED	CABLE QUANTITY	CABLE DETAILS
A	2"	PVC	COMMS	LOOPS 1, 2, 3, 4, 5, 7	6	⑤
A1	2"	PVC	COMMS	LOOPS 3, 4, 7	3	⑤
B	2"	PVC	COMMS	DUAL AUX FLASH UNIT	2	④
C	2"	PVC	POWER	DUAL AUX FLASH UNIT	6	①
D	2"	PVC	POWER	CAMERA UNIT POWER, RED/YELLOW PHASE CONTROL	3	③ 3 ①
E	2"	PVC	POWER	GS-II UNIT	3	③ 9 ①
F	2"	PVC	COMMS	GS-II UNIT	2	④ 6 ⑤ 1 ④A
G	2"	PVC	COMMS	TO D-MARC LOCATION	1	④A

CABLE SCHEDULE

- ① — #14 AWG THHN
② — #12 AWG THHN
③ — #10 AWG THHN
④ — IMSA 40-2, 3 PAIR 19AWG w/ POLYETHYLENE JACKET (COMMS CABLE)
④A — CAT-5e (BELDEN 7919A OR EQUIVALENT)
⑤ — IMSA 50-2, 12 AWG
⑥ — IMSA 51-7, 14 AWG
⑦ — 12 STRAND FIBER OPTIC CABLE
⑧ — RG-59 VIDEO CABLE

RED LIGHT CAMERA LEGEND

- Video Detection Camera
Camera Unit
Auxiliary Flash Assembly
No. 5 Pullbox
Power Pedestal

NOTES

- ACS TO PROVIDE CAMERA POLE AND CAMERA UNIT, SUBCONTRACTOR TO PROVIDE PELCO FOUNDATION. POLES SHALL BE FIELD LOCATED AND SHALL BE 36" MINIMUM FROM FACE OF CURB TO CENTER OF BASE. SEE DETAIL. LOCATION OF EQUIPMENT SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
- INSTALL TO LOCAL AND NEC SPECIFICATIONS.
- EACH POLE SHALL BE GROUNDED WITH #10 SOLID GROUND WIRE AND 10' GROUND ROD.
- CONTRACTOR SHALL HAND DIG POLE FOUNDATION FOR ACS CAMERA OR FLASH UNIT POLES.
- CONDUIT SHALL BE INSTALLED BY MEANS OF TRENCHING, TRENCHING SHALL BE IN ACCORDANCE TO CURRENT DOT STANDARD SPECIFICATIONS.
- CONTRACTOR SHALL MODIFY EXISTING 120VAC SERVICE, A DUPLEX OUTLET SHALL BE INCLUDED FOR ACCESS BY DOT PERSONNEL.
- INSTALL NEW PULL BOX - SEE GENERAL NOTES #10, SHEET SIG-1.
- CONTRACTOR TO CLEAN UP DEBRIS AROUND WORK AREA AND RESTORE LANDSCAPE.
- INSTALL IN-LINE FUSE HOLDERS RATED AT 20 AMPS FOR POWER.
- INSTALL IN-LINE FUSE HOLDERS RATED AT 5 AMPS FOR PHASE CONDUCTORS.
- INSTALL IN-LINE FUSE HOLDERS RATED AT 15 AMPS FOR EACH AUX FLASH POWER.
- CONTRACTOR SHALL REPAIR AND REPLACE SIDEWALK IN KIND AS REQUIRED TO INSTALL EQUIPMENT AND CONDUITS.

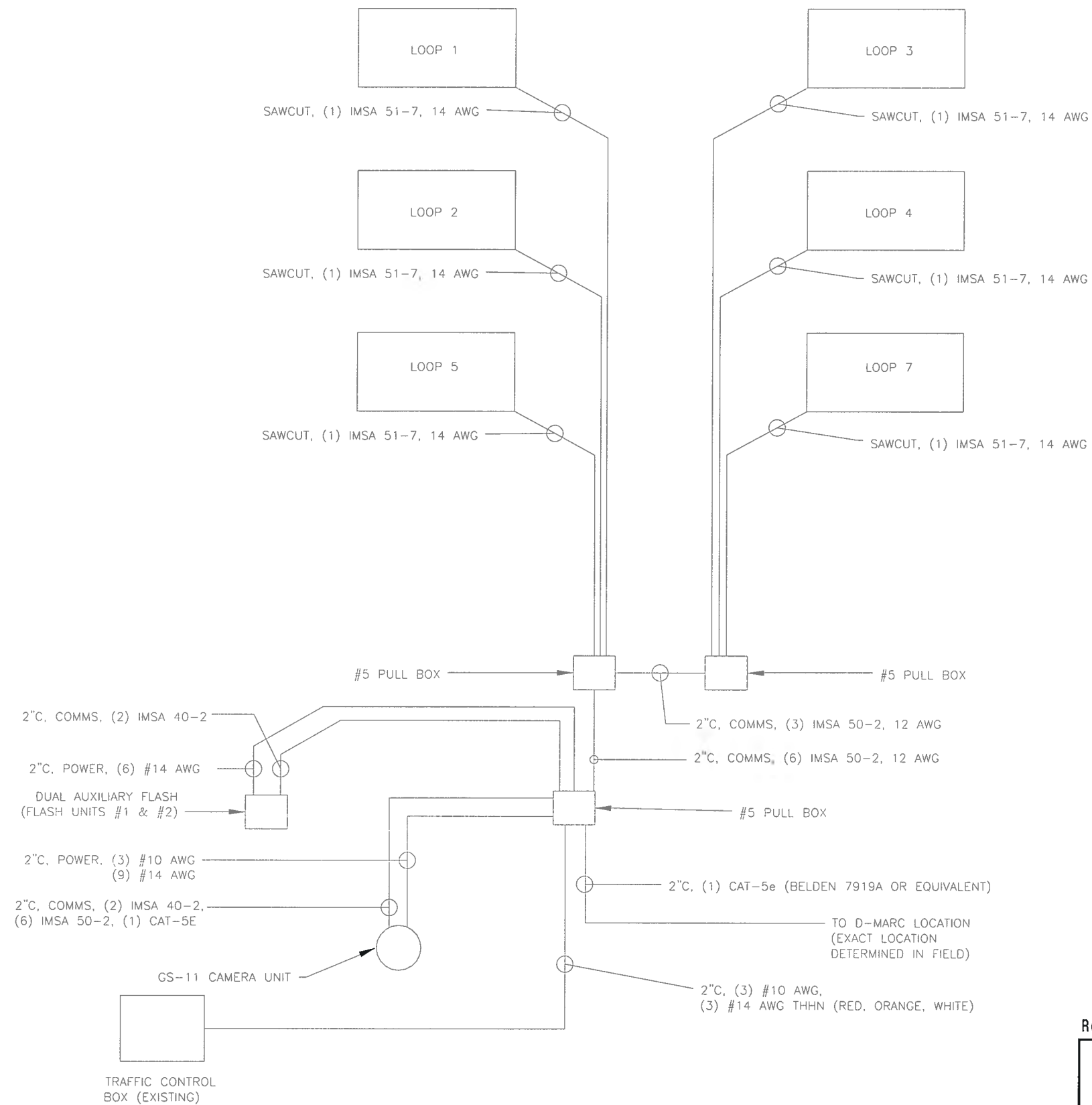
Red Light Camera Installation - Loop and Conduit Plan

	SR 2911 (New Bern Avenue) at I-440 Eastbound Ramp (Inner Loop)		SEAL
	Division 5 Wake County Raleigh	PLAN DATE: Jan 2009 PREPARED BY: [Signature] REVIEWED BY: [Signature] REVISIONS: [Table] INITIALS: [Table] DATE: [Table]	
SCALE NONE	SIC. INVENTORY NO. 05-1614		


ACS
Germantown, MD

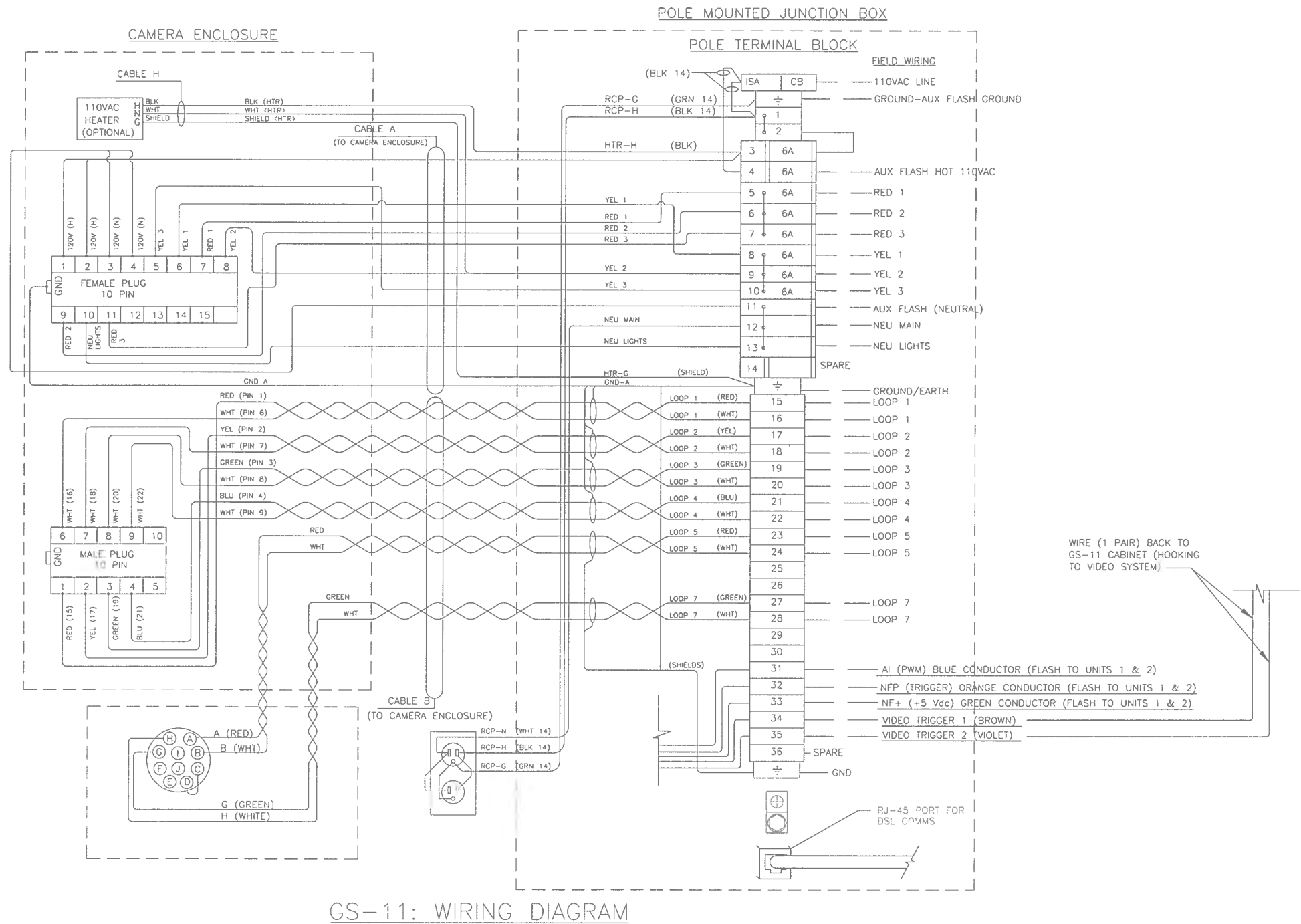
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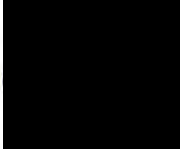


Red Light Camera Installation - Single Line Diagram

 <p>Prepared for: Traffic Engineering and Safety Section DEPARTMENT OF TRANSPORTATION STATE OF NORTH CAROLINA Special and Geometric Section</p> <p>756 Greensfield Place, Garner, NC 27559</p>	<p>SR 2911 (New Bern Avenue) at I-440 Eastbound Ramp (Inner Loop)</p>		<p>SEAL</p>	
	<p>Division 5 Wake County Raleigh</p>			
	<p>PLAN DATE: Jan 2009</p>	<p>REVIEWED BY: [Redacted]</p>		
	<p>PREPARED BY: [Redacted]</p>	<p>RKA PROJ. NO.: 08232 (040)</p>		
<p>SCALE</p>	<p>REVISIONS:</p>	<p>INIT.</p>	<p>DATE</p>	<p><i>1-22-2009</i></p>
<p>NONE</p>			<p>SIGNATURE</p>	<p>DATE</p>
			<p>SIG. INVENTORY NO.</p>	<p>05-1614</p>

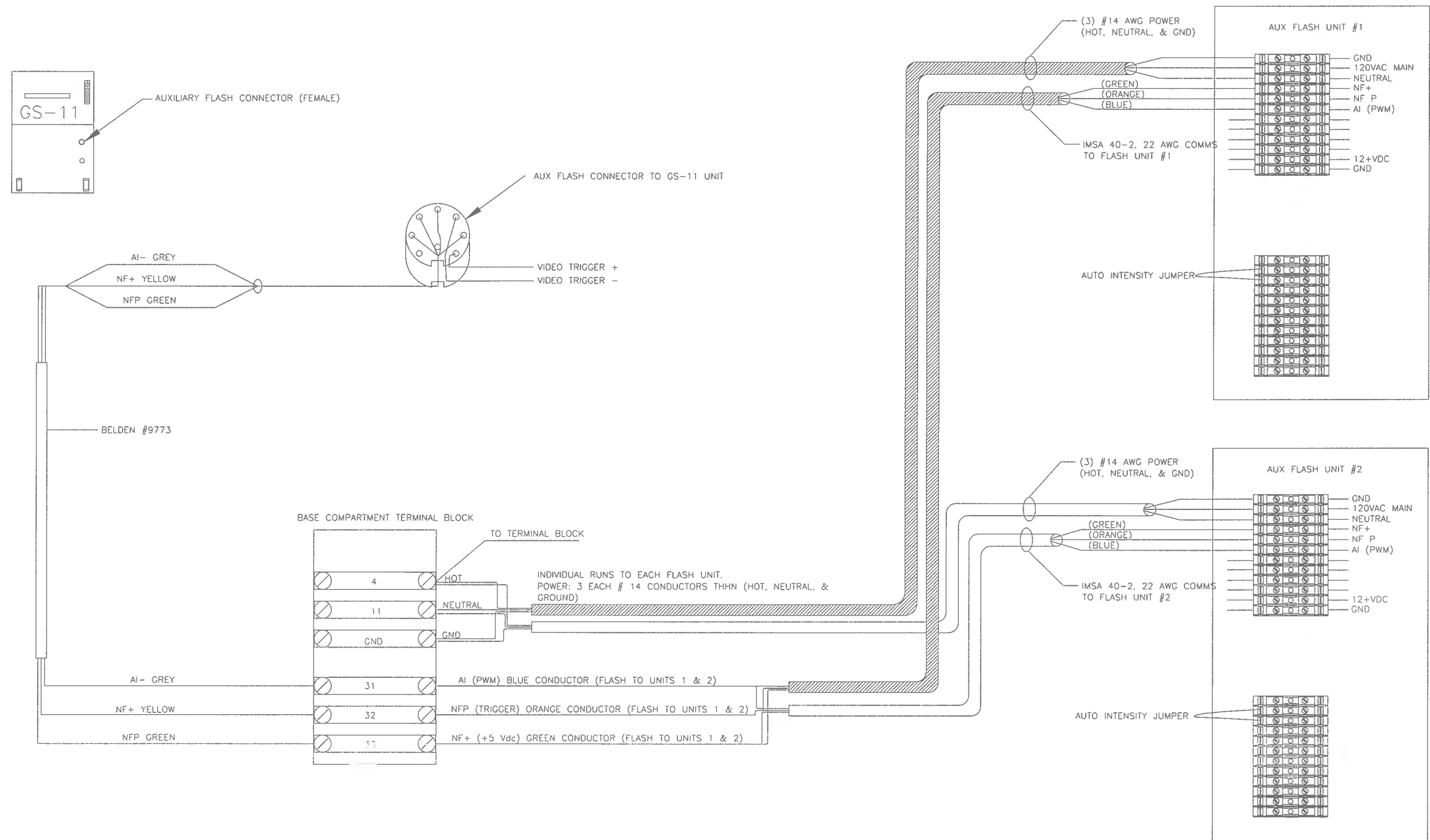


Red Light Camera Installation - Camera Unit Terminal Strip Wiring Details

 750 Greenfield Place, Cary, NC 27529	SR 2911 (New Bern Avenue) at I-440 Eastbound Ramp (Inner Loop) Division 5 Wake County Raleigh		 1-22-2009
	PLAN DATE: Jan 2009	REVIEWED BY:	
	PREPARED BY:	RKA PROJ. NO.: 08232 (040)	
	REVISIONS		
SCALE NONE	INITIALS	DATE	SIGNATURE DATE

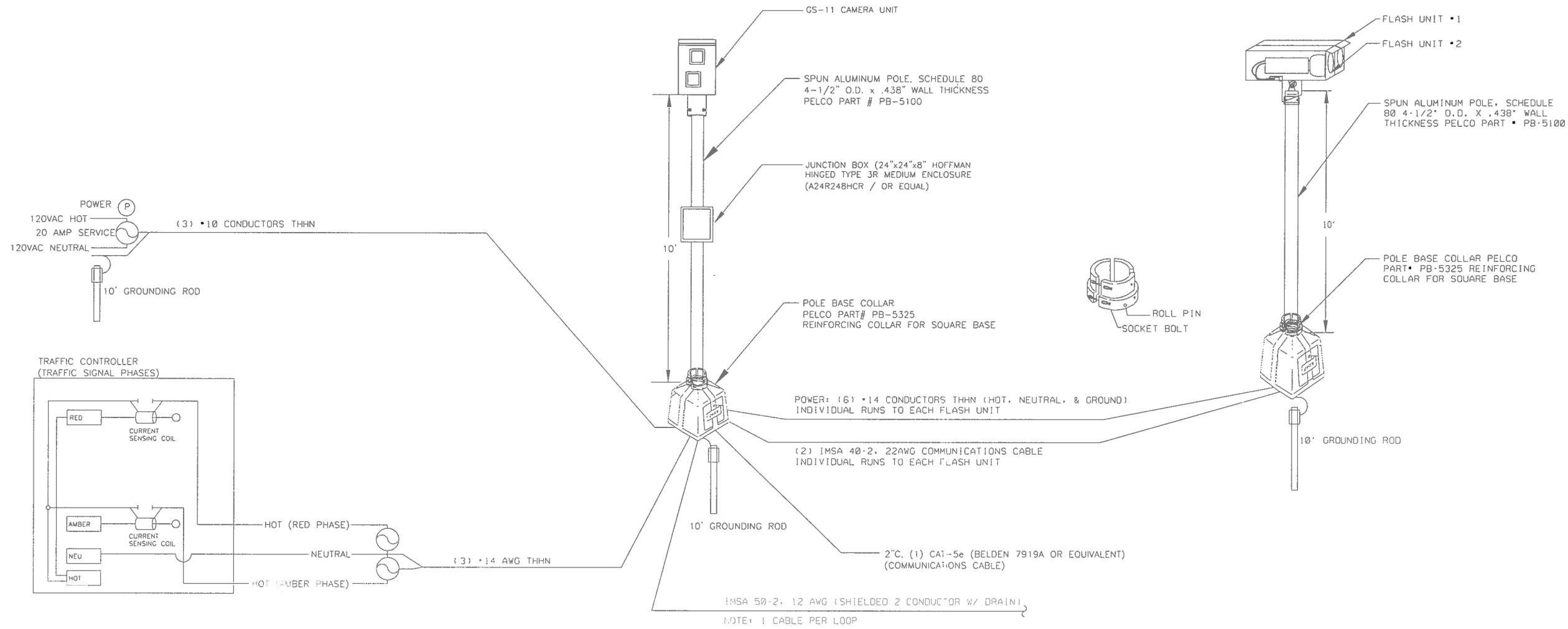
ACS
Germantown, MD
12410 MILESTONE CENTER DRIVE
4TH FLOOR
GERMANTOWN, MD 20876
PHONE (301) 357-9403

RAMEY KEMP ASSOCIATES, INC.
Transportation Engineers
8005 Farmington Place, Suite 100
Raleigh, North Carolina 27609
919-872-8116 Tel. 919-878-6416 Fax.
www.rameykemp.com



Red Light Camera Installation - Flash Unit to Camera Pole Wiring Details

SUBCONTRACTOR MUST NOTIFY THE BELOW LISTED AGENCY AT
LEAST THREE (3) WORKING DAYS PRIOR TO COMMENCEMENT OF
NORTH CAROLINA ONE CALL CENTER.
1-800-632-4949



Red Light Camera Installation - Camera Unit/Dual Flash Configuration



SR 2911 (New Bern Avenue)
at
I-440 Eastbound Ramp
(Inner Loop)

Division 5		Wake County		Raleigh	
PLAN DATE: Jan 2009		REVIEWED BY: [REDACTED]			
PREPARED BY: [REDACTED]		RKA PROJ. NO.: 08232 (040)			

REVISIONS		INIT.	DATE

SEAL

1-22-2009

SIGNATURE	DATE
SIG. INVENTORY NO.	05-1614



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DRIVE
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GERMANTOWN, MD 20876
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RAMEY KEMP
- - - & - - -
ASSOCIATES, INC
Transportation Engineers
6806 Farmington Place, Suite 100
Raleigh, North Carolina 27608
919-872-6116 Tel. 919-878-6416 Fax.
www.rameykemp.com

SCALE

NONE